FIG.1

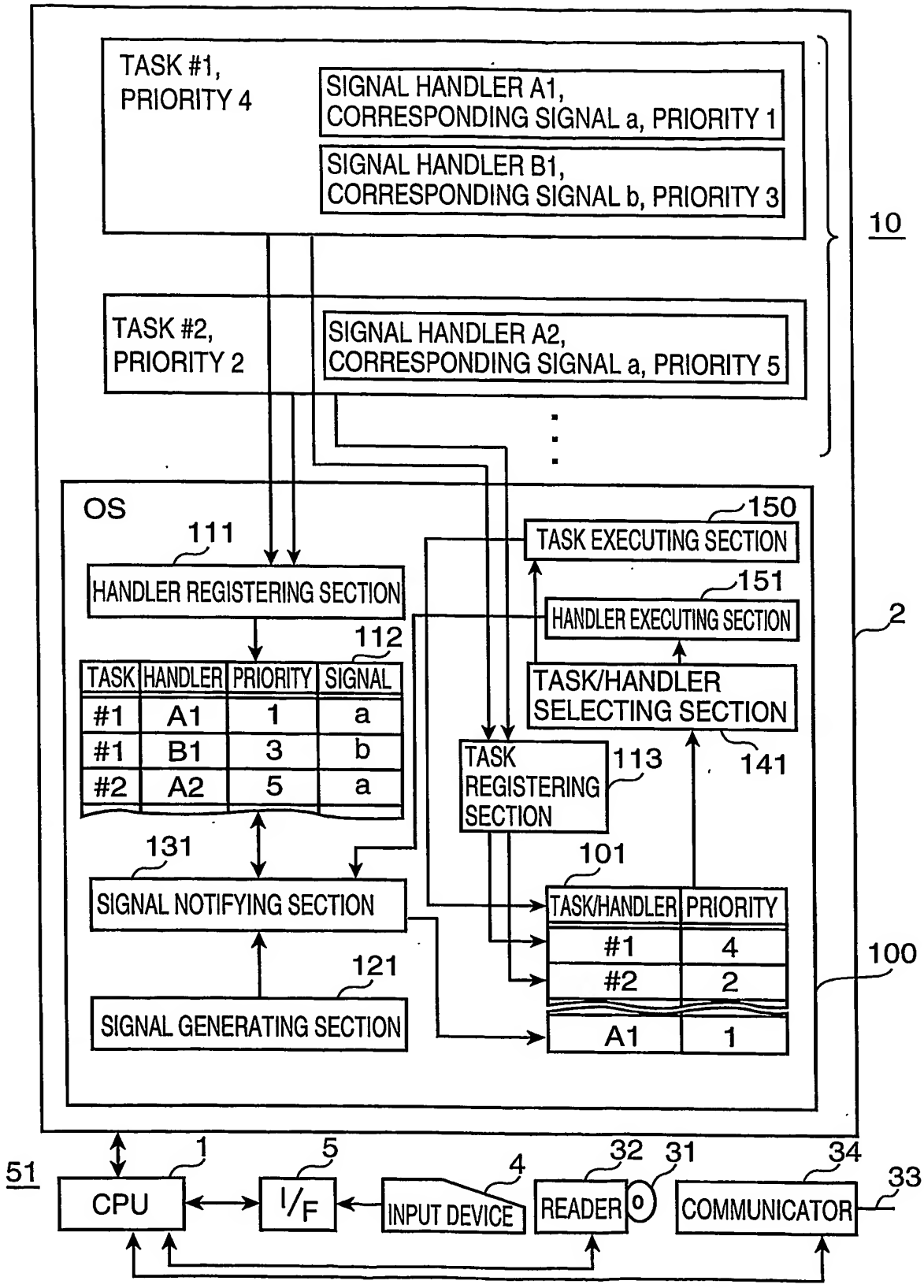

TASK #1,
PRIORITY 4
SIGNAL HANDLER A1,
CORRESPONDING SIGNAL a, PRIORITY 1
SIGNAL HANDLER B1,
CORRESPONDING SIGNAL b, PRIORITY 3
10
TASK #2,
PRIORITY 2
SIGNAL HANDLER A2,
CORRESPONDING SIGNAL a, PRIORITY 5
OS
111
HANDLER REGISTERING SECTION
112
TASK HANDLER PRIORITY SIGNAL
#1 A1 1 a
#1 B1 3 b
#2 A2 5 a
150
TASK EXECUTING SECTION
151
HANDLER EXECUTING SECTION
2
TASK/HANDLER
SELECTING SECTION
141
TASK
REGISTERING
SECTION
113
131
SIGNAL NOTIFYING SECTION
101
TASK/HANDLER PRIORITY
#1 4
#2 2
A1 1
100
121
SIGNAL GENERATING SECTION
51
1
CPU
5
I/F
4
INPUT DEVICE
32
31
READER
34
33
COMMUNICATOR

FIG.2

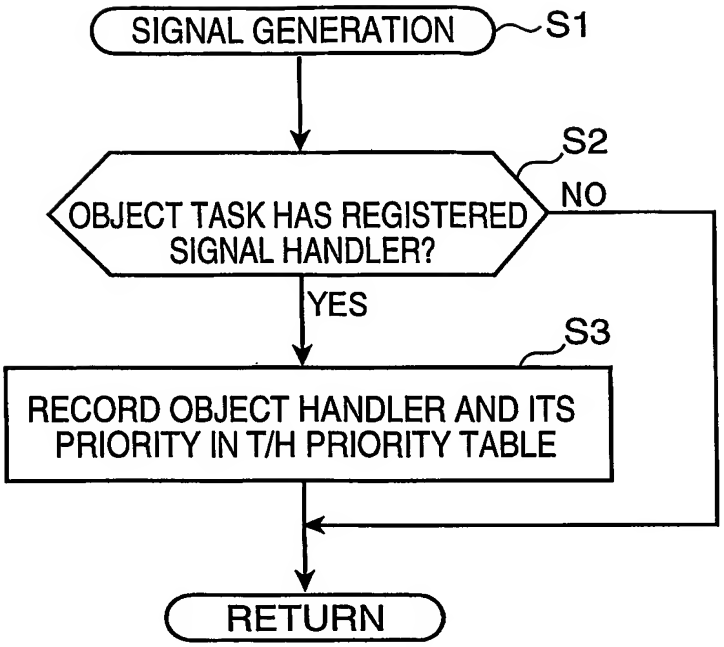

SIGNAL GENERATION
S1
S2
OBJECT TASK HAS REGISTERED SIGNAL HANDLER?
NO
YES
S3
RECORD OBJECT HANDLER AND ITS PRIORITY IN T/H PRIORITY TABLE
RETURN

FIG.3

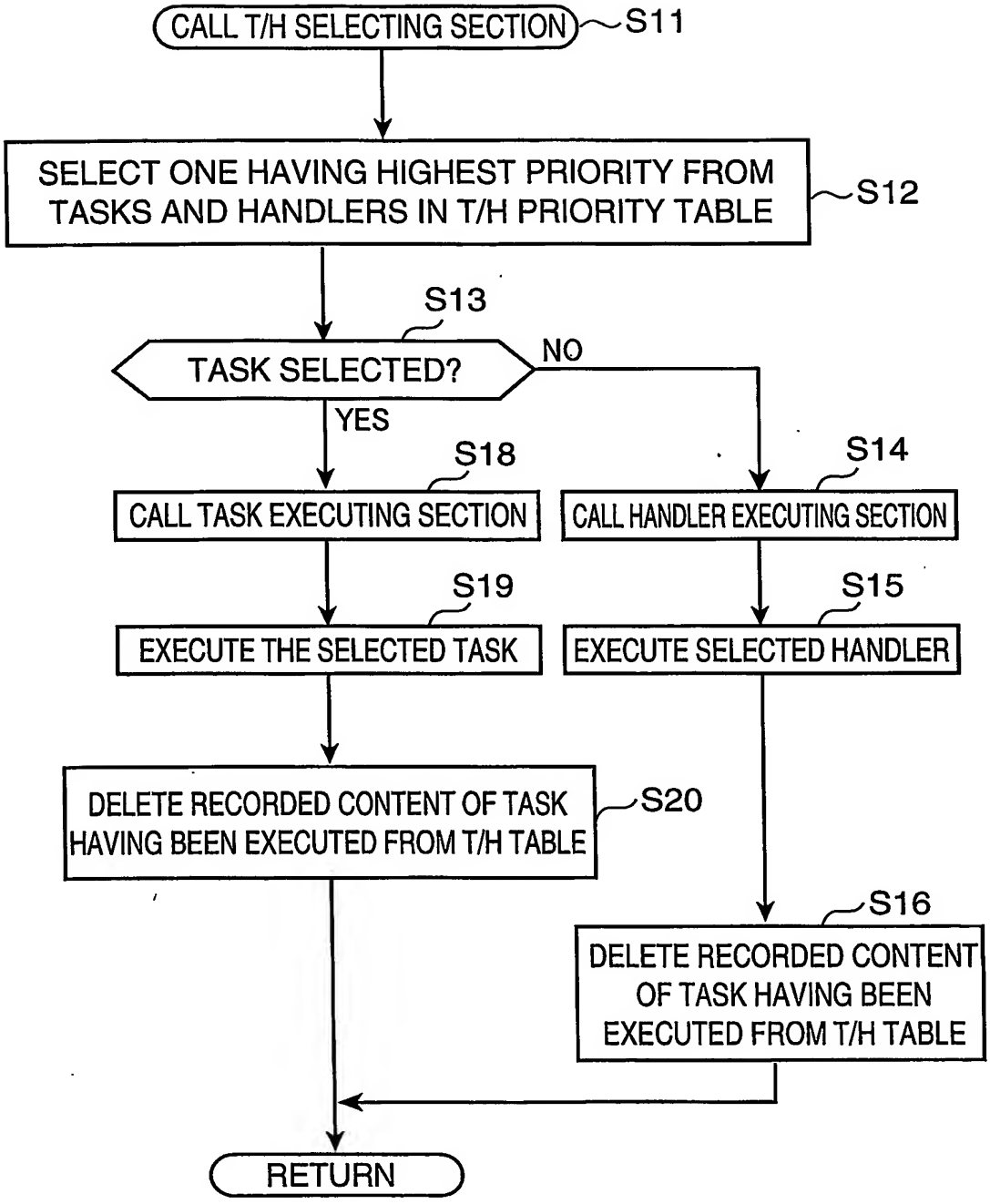

CALL T/H SELECTING SECTION
S11
SELECT ONE HAVING HIGHEST PRIORITY FROM TASKS AND HANDLERS IN T/H PRIORITY TABLE
S12
S13
TASK SELECTED?
NO
YES
S18
CALL TASK EXECUTING SECTION
S14
CALL HANDLER EXECUTING SECTION
S19
EXECUTE THE SELECTED TASK
S15
EXECUTE SELECTED HANDLER
DELETE RECORDED CONTENT OF TASK HAVING BEEN EXECUTED FROM T/H TABLE
S20
S16
DELETE RECORDED CONTENT OF TASK HAVING BEEN EXECUTED FROM T/H TABLE
RETURN

FIG.4

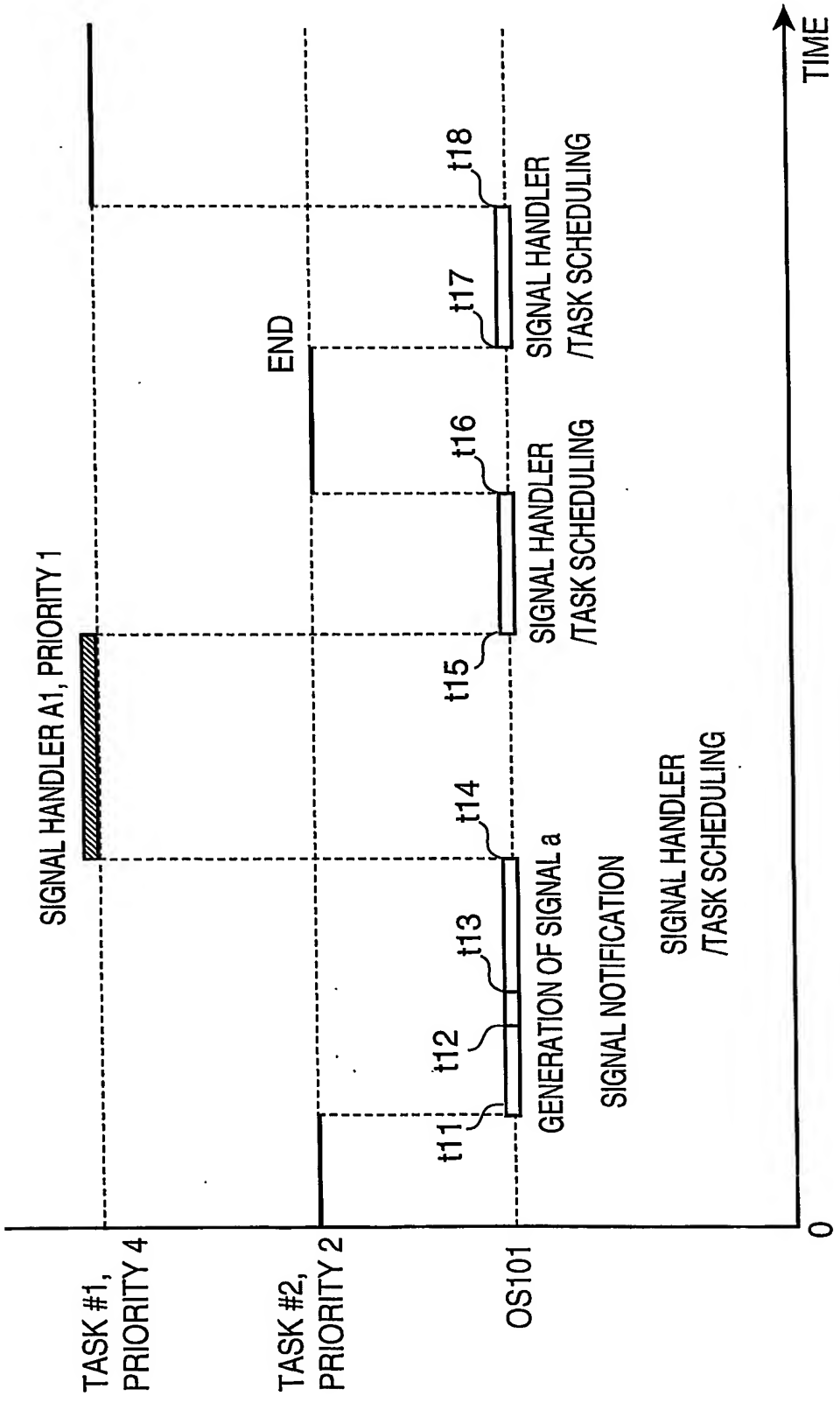

TASK #1, PRIORITY 4
TASK #2, PRIORITY 2
OS101
0
TIME
SIGNAL HANDLER A1, PRIORITY 1
END
t11
t12
t13
t14
t15
t16
t17
t18
GENERATION OF SIGNAL a
SIGNAL NOTIFICATION
SIGNAL HANDLER /TASK SCHEDULING
SIGNAL HANDLER /TASK SCHEDULING
SIGNAL HANDLER /TASK SCHEDULING

FIG.5

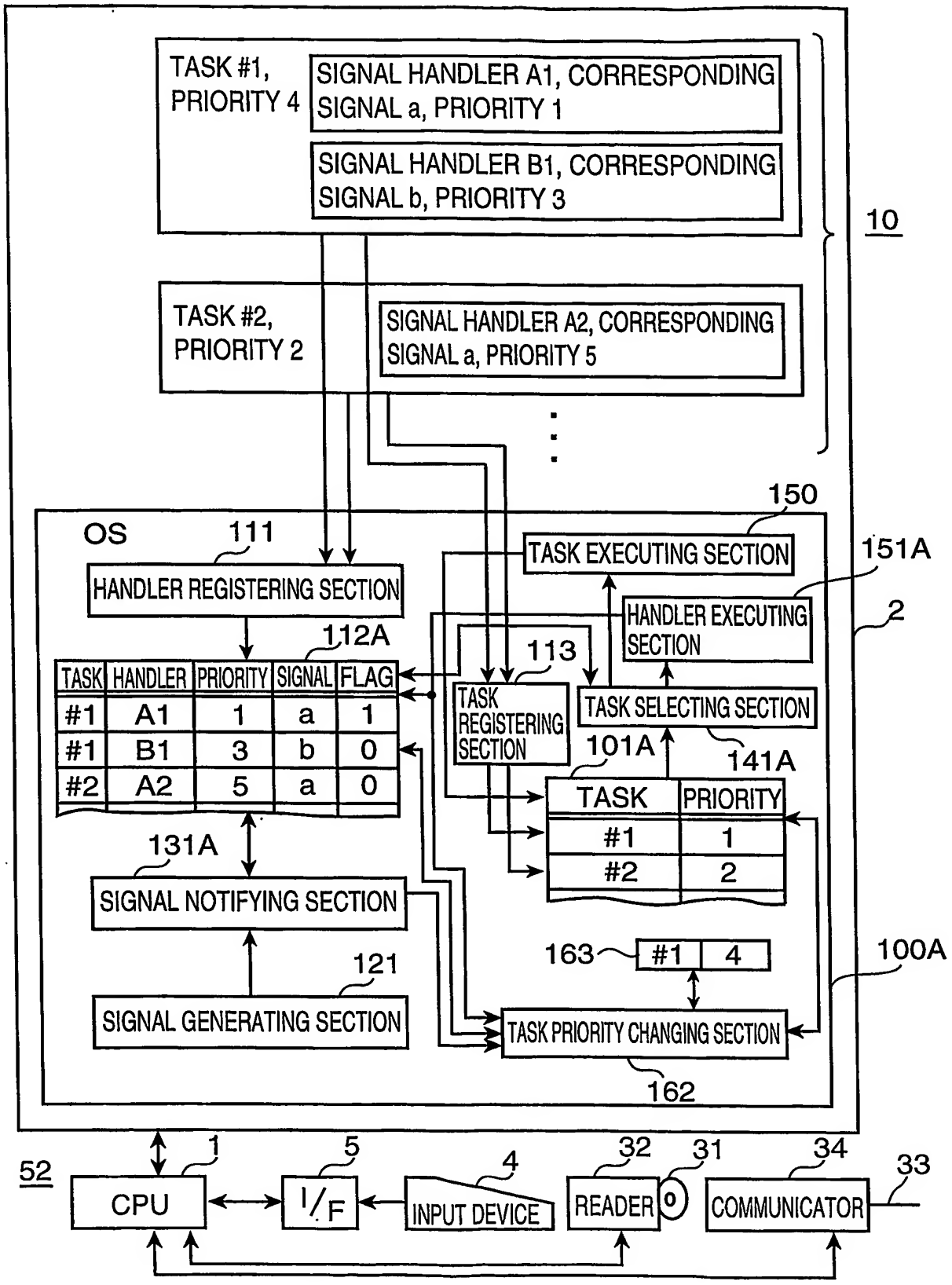

TASK #1, PRIORITY 4
SIGNAL HANDLER A1, CORRESPONDING SIGNAL a, PRIORITY 1
SIGNAL HANDLER B1, CORRESPONDING SIGNAL b, PRIORITY 3
TASK #2, PRIORITY 2
SIGNAL HANDLER A2, CORRESPONDING SIGNAL a, PRIORITY 5
10
OS
111
HANDLER REGISTERING SECTION
150
TASK EXECUTING SECTION
151A
HANDLER EXECUTING SECTION
2
112A
TASK HANDLER PRIORITY SIGNAL FLAG
#1 A1 1 a 1
#1 B1 3 b 0
#2 A2 5 a 0
113
TASK REGISTERING SECTION
TASK SELECTING SECTION
101A
141A
TASK PRIORITY
#1 1
#2 2
131A
SIGNAL NOTIFYING SECTION
121
SIGNAL GENERATING SECTION
163
#1 4
100A
TASK PRIORITY CHANGING SECTION
162
52
1
CPU
5
I/F
4
INPUT DEVICE
32
31
READER
34
33
COMMUNICATOR

FIG.6

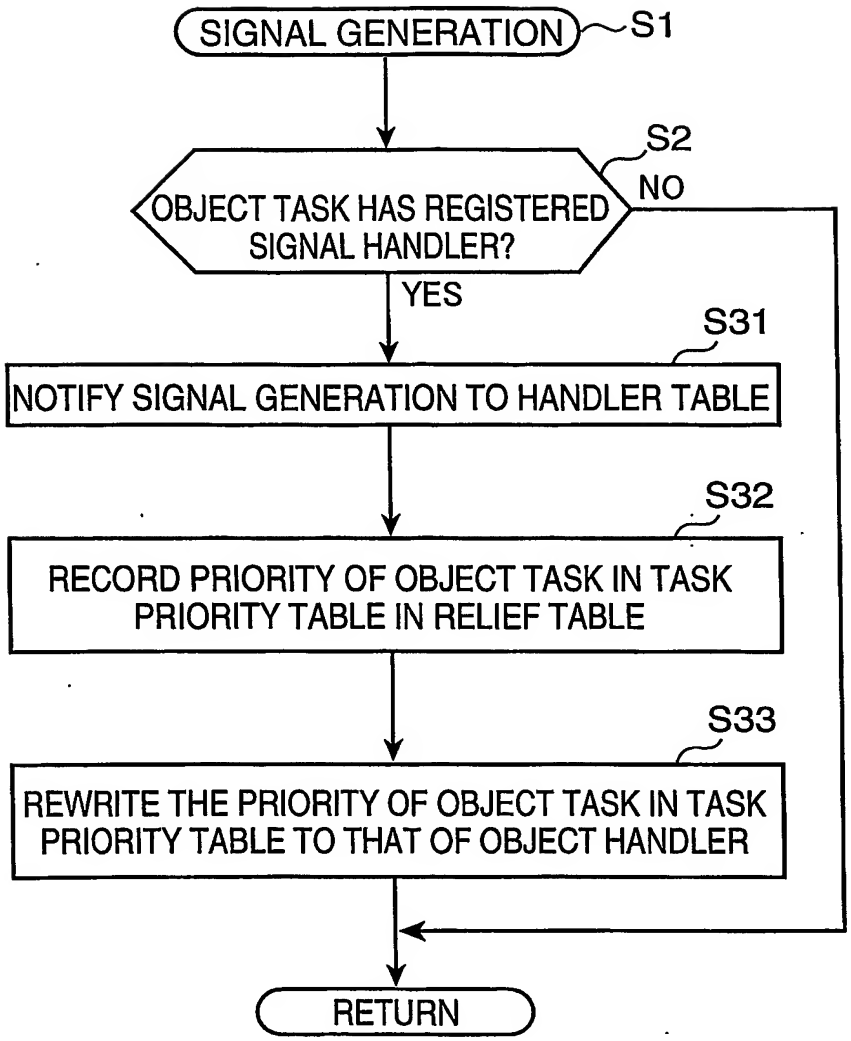

SIGNAL GENERATION
S1
S2
OBJECT TASK HAS REGISTERED SIGNAL HANDLER?
NO
YES
S31
NOTIFY SIGNAL GENERATION TO HANDLER TABLE
S32
RECORD PRIORITY OF OBJECT TASK IN TASK PRIORITY TABLE IN RELIEF TABLE
S33
REWRITE THE PRIORITY OF OBJECT TASK IN TASK PRIORITY TABLE TO THAT OF OBJECT HANDLER
RETURN

FIG.7

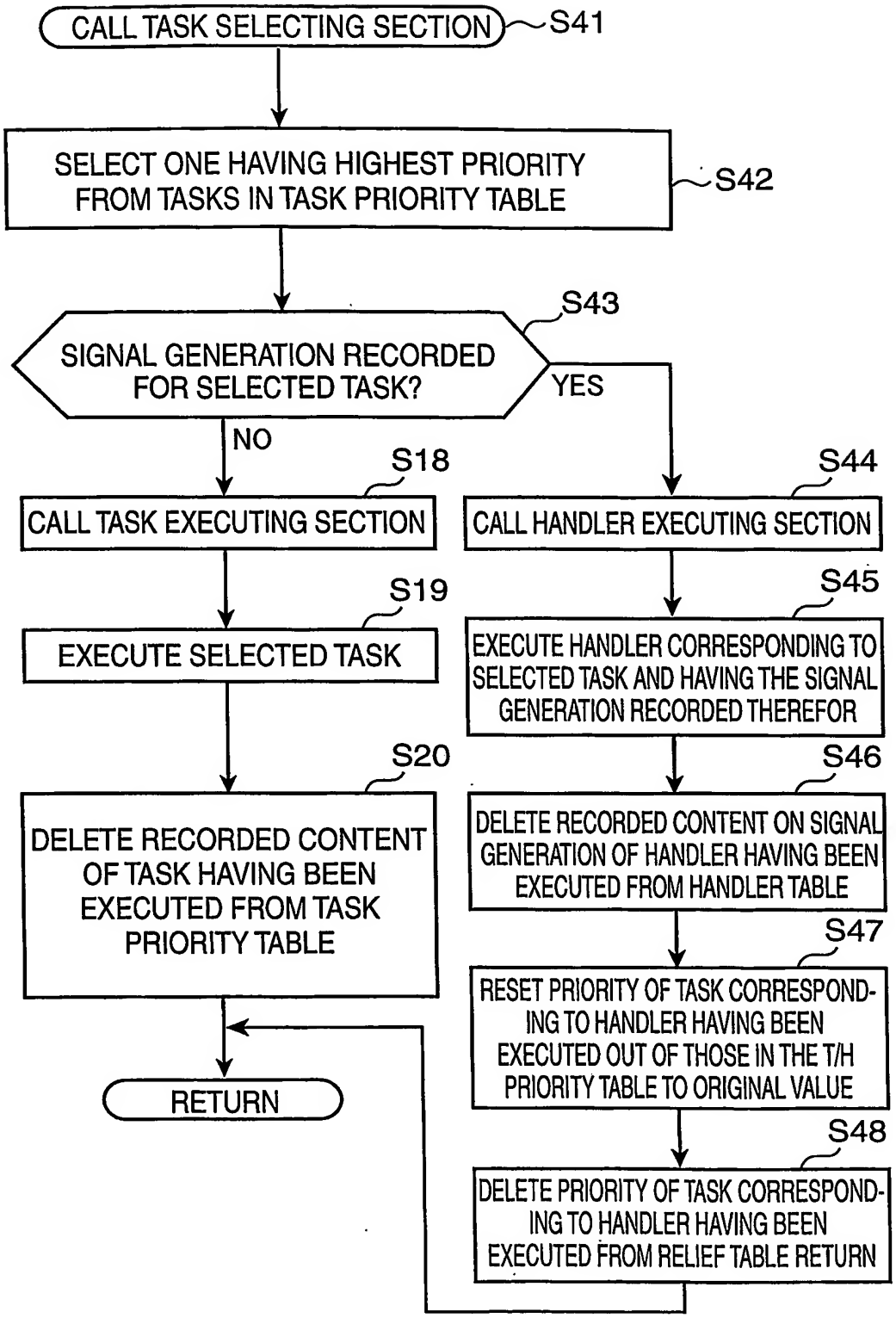

CALL TASK SELECTING SECTION
S41
SELECT ONE HAVING HIGHEST PRIORITY FROM TASKS IN TASK PRIORITY TABLE
S42
S43
SIGNAL GENERATION RECORDED FOR SELECTED TASK?
YES
NO
S18
CALL TASK EXECUTING SECTION
S19
EXECUTE SELECTED TASK
S20
DELETE RECORDED CONTENT OF TASK HAVING BEEN EXECUTED FROM TASK PRIORITY TABLE
RETURN
S44
CALL HANDLER EXECUTING SECTION
S45
EXECUTE HANDLER CORRESPONDING TO SELECTED TASK AND HAVING THE SIGNAL GENERATION RECORDED THEREFOR
S46
DELETE RECORDED CONTENT ON SIGNAL GENERATION OF HANDLER HAVING BEEN EXECUTED FROM HANDLER TABLE
S47
RESET PRIORITY OF TASK CORRESPONDING TO HANDLER HAVING BEEN EXECUTED OUT OF THOSE IN THE T/H PRIORITY TABLE TO ORIGINAL VALUE
S48
DELETE PRIORITY OF TASK CORRESPONDING TO HANDLER HAVING BEEN EXECUTED FROM RELIEF TABLE RETURN

FIG.8

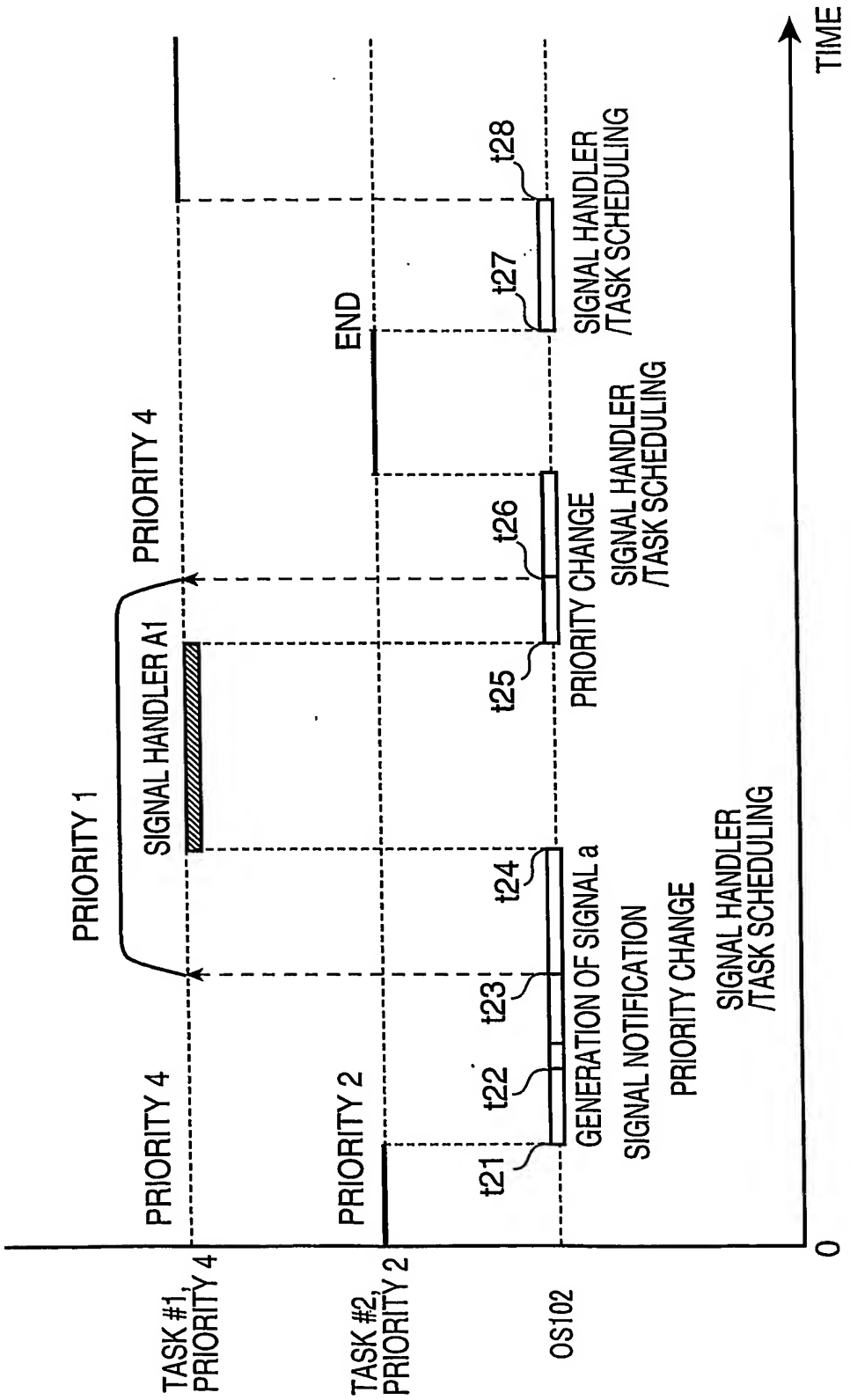

TASK #1, PRIORITY 4
TASK #2, PRIORITY 2
OS102
PRIORITY 4
PRIORITY 2
PRIORITY 1
SIGNAL HANDLER A1
PRIORITY 4
t21
t22
t23
t24
t25
t26
t27
t28
GENERATION OF SIGNAL a
SIGNAL NOTIFICATION
PRIORITY CHANGE
SIGNAL HANDLER /TASK SCHEDULING
END
PRIORITY CHANGE
SIGNAL HANDLER /TASK SCHEDULING
SIGNAL HANDLER /TASK SCHEDULING
0
TIME

FIG.9

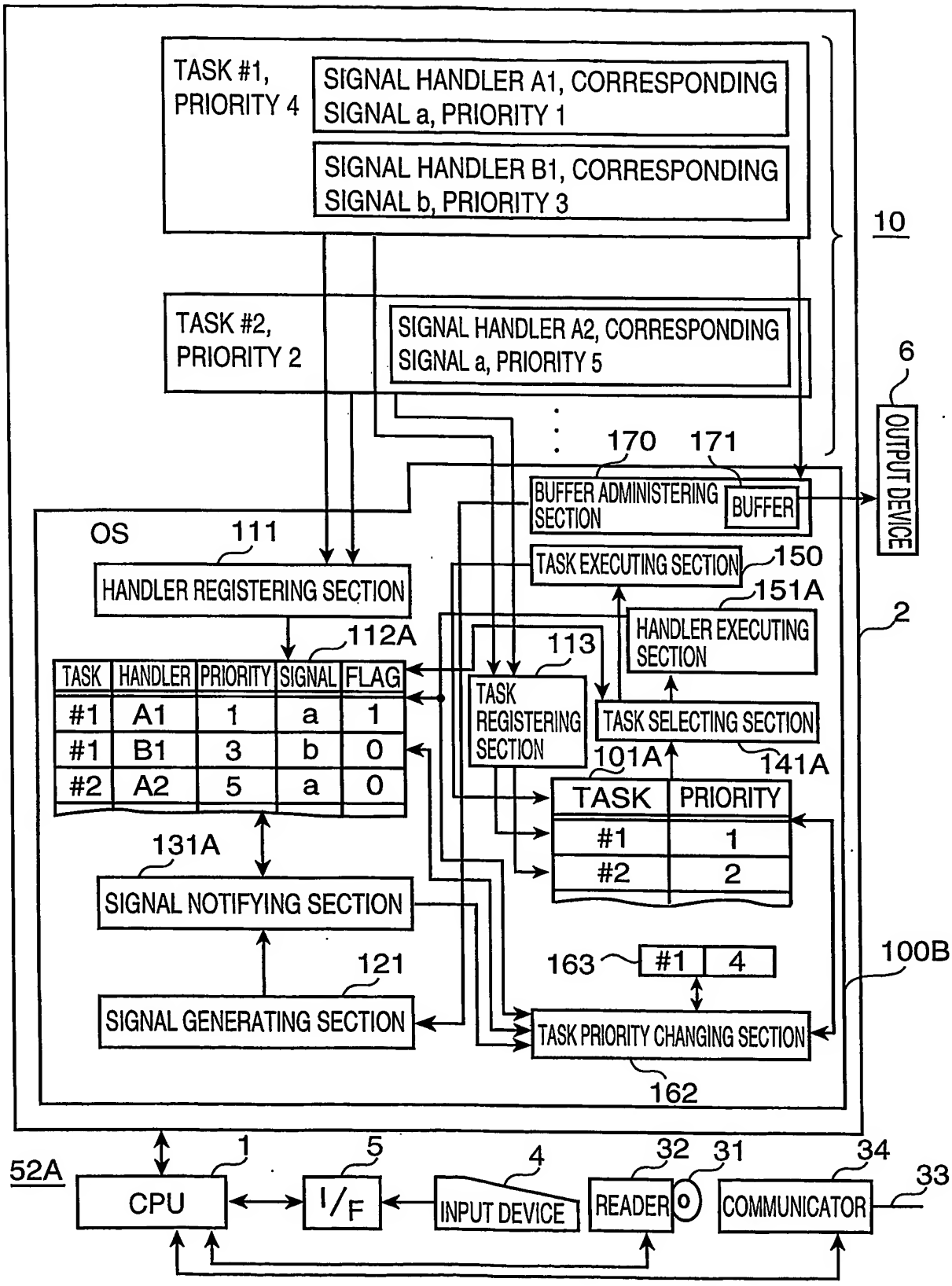

TASK #1, PRIORITY 4
SIGNAL HANDLER A1, CORRESPONDING SIGNAL a, PRIORITY 1
SIGNAL HANDLER B1, CORRESPONDING SIGNAL b, PRIORITY 3
10
TASK #2, PRIORITY 2
SIGNAL HANDLER A2, CORRESPONDING SIGNAL a, PRIORITY 5
6
OUTPUT DEVICE
170
171
BUFFER ADMINISTERING SECTION
BUFFER
OS
111
HANDLER REGISTERING SECTION
TASK EXECUTING SECTION
150
151A
HANDLER EXECUTING SECTION
2
112A
113
TASK REGISTERING SECTION
TASK SELECTING SECTION
141A
101A
TASK
HANDLER
PRIORITY
SIGNAL
FLAG
#1 A1 1 a 1
#1 B1 3 b 0
#2 A2 5 a 0
TASK
PRIORITY
#1 1
#2 2
131A
SIGNAL NOTIFYING SECTION
121
163
#1 4
100B
SIGNAL GENERATING SECTION
TASK PRIORITY CHANGING SECTION
162
52A
1
5
4
32
31
34
33
CPU
I/F
INPUT DEVICE
READER
COMMUNICATOR

FIG.10

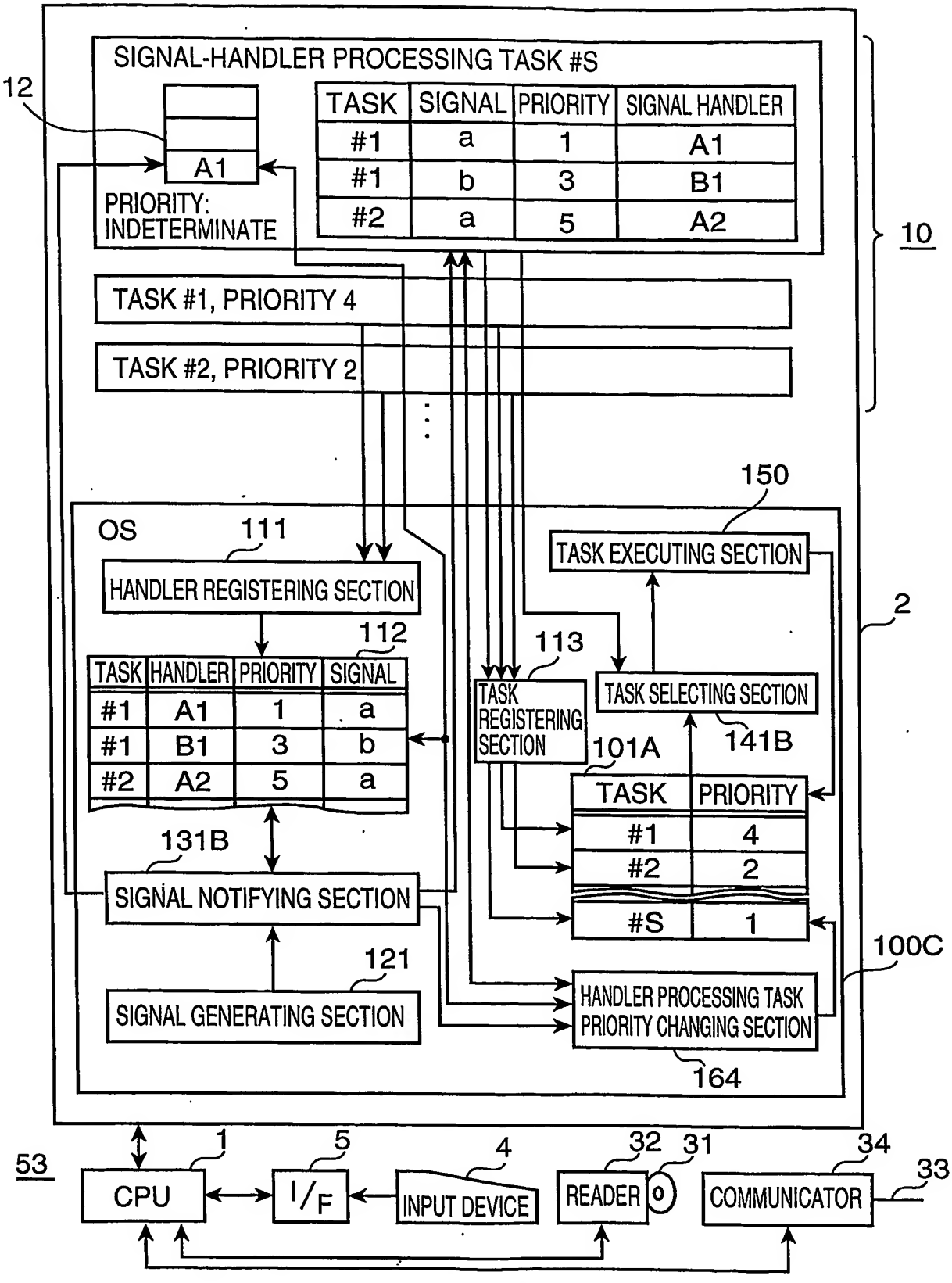

SIGNAL-HANDLER PROCESSING TASK #S
12
A1
PRIORITY: INDETERMINATE
TASK | SIGNAL | PRIORITY | SIGNAL HANDLER
#1 | a | 1 | A1
#1 | b | 3 | B1
#2 | a | 5 | A2
10
TASK #1, PRIORITY 4
TASK #2, PRIORITY 2
150
OS
111
HANDLER REGISTERING SECTION
TASK EXECUTING SECTION
2
112
113
TASK | HANDLER | PRIORITY | SIGNAL
#1 | A1 | 1 | a
#1 | B1 | 3 | b
#2 | A2 | 5 | a
TASK REGISTERING SECTION
TASK SELECTING SECTION
141B
101A
TASK | PRIORITY
#1 | 4
#2 | 2
#S | 1
131B
SIGNAL NOTIFYING SECTION
121
SIGNAL GENERATING SECTION
HANDLER PROCESSING TASK PRIORITY CHANGING SECTION
100C
164
53
1
5
4
32
31
34
33
CPU
I/F
INPUT DEVICE
READER
COMMUNICATOR

FIG.11

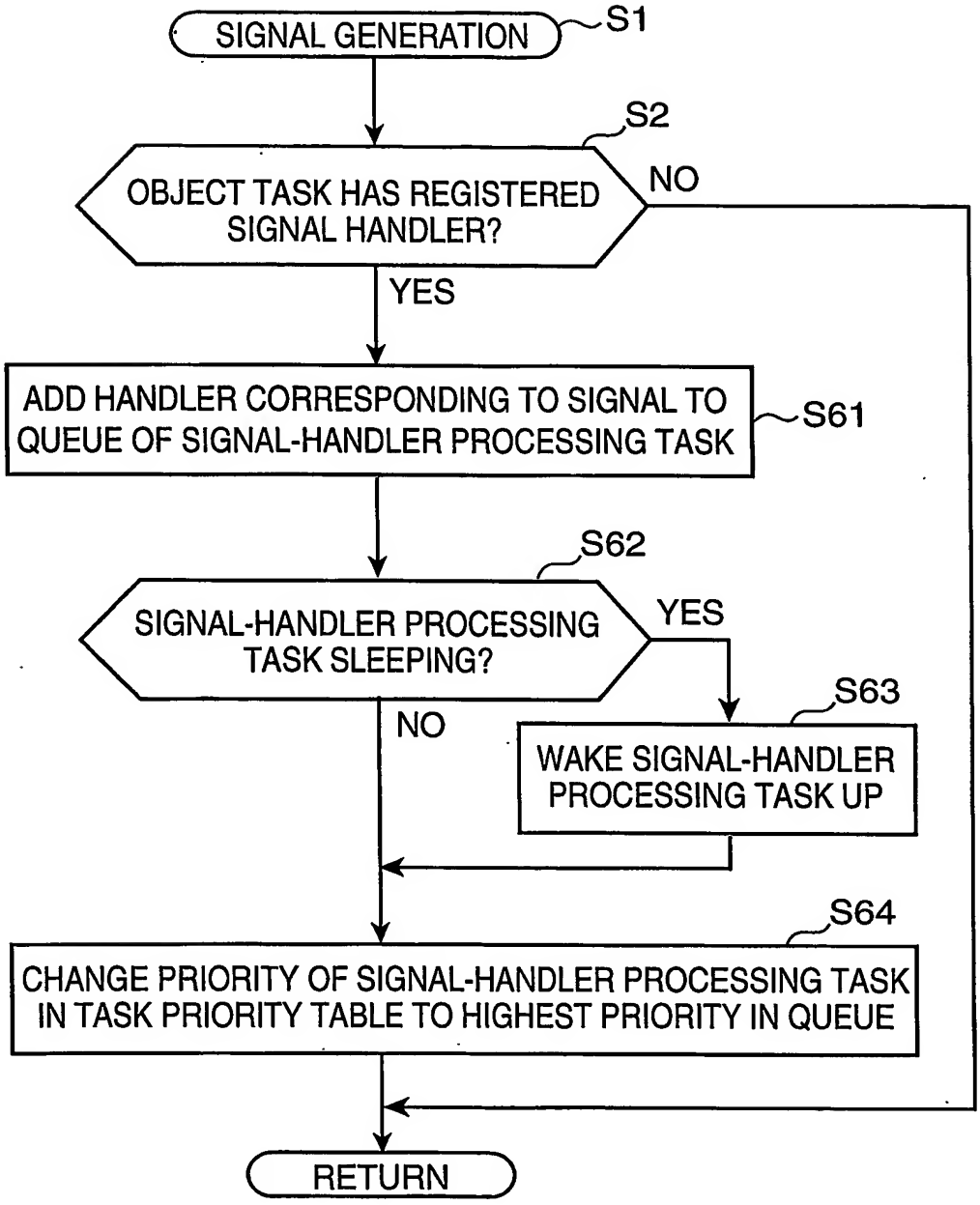

SIGNAL GENERATION
S1
S2
OBJECT TASK HAS REGISTERED SIGNAL HANDLER?
NO
YES
ADD HANDLER CORRESPONDING TO SIGNAL TO QUEUE OF SIGNAL-HANDLER PROCESSING TASK
S61
S62
SIGNAL-HANDLER PROCESSING TASK SLEEPING?
YES
NO
S63
WAKE SIGNAL-HANDLER PROCESSING TASK UP
S64
CHANGE PRIORITY OF SIGNAL-HANDLER PROCESSING TASK IN TASK PRIORITY TABLE TO HIGHEST PRIORITY IN QUEUE
RETURN

FIG.12

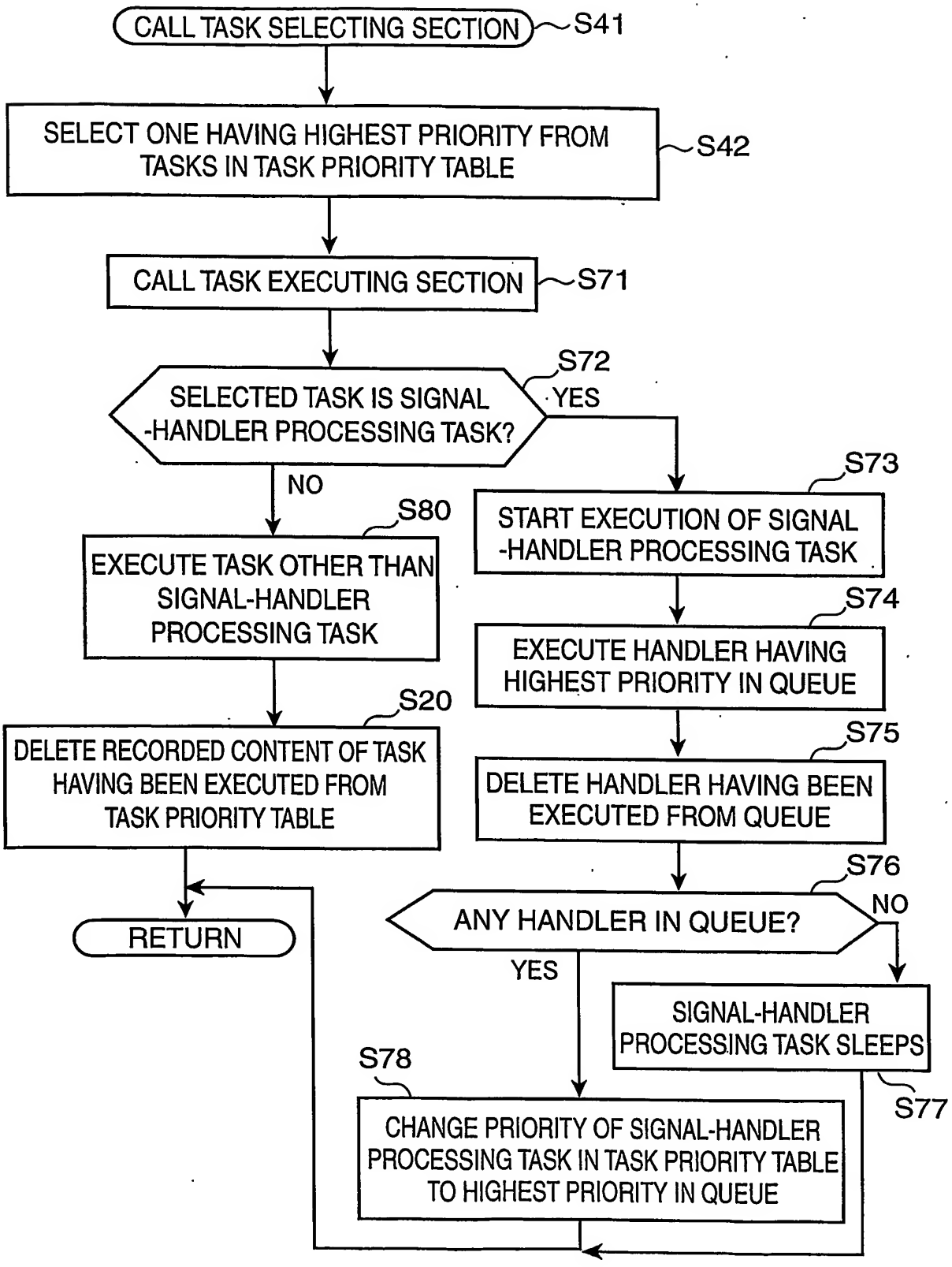
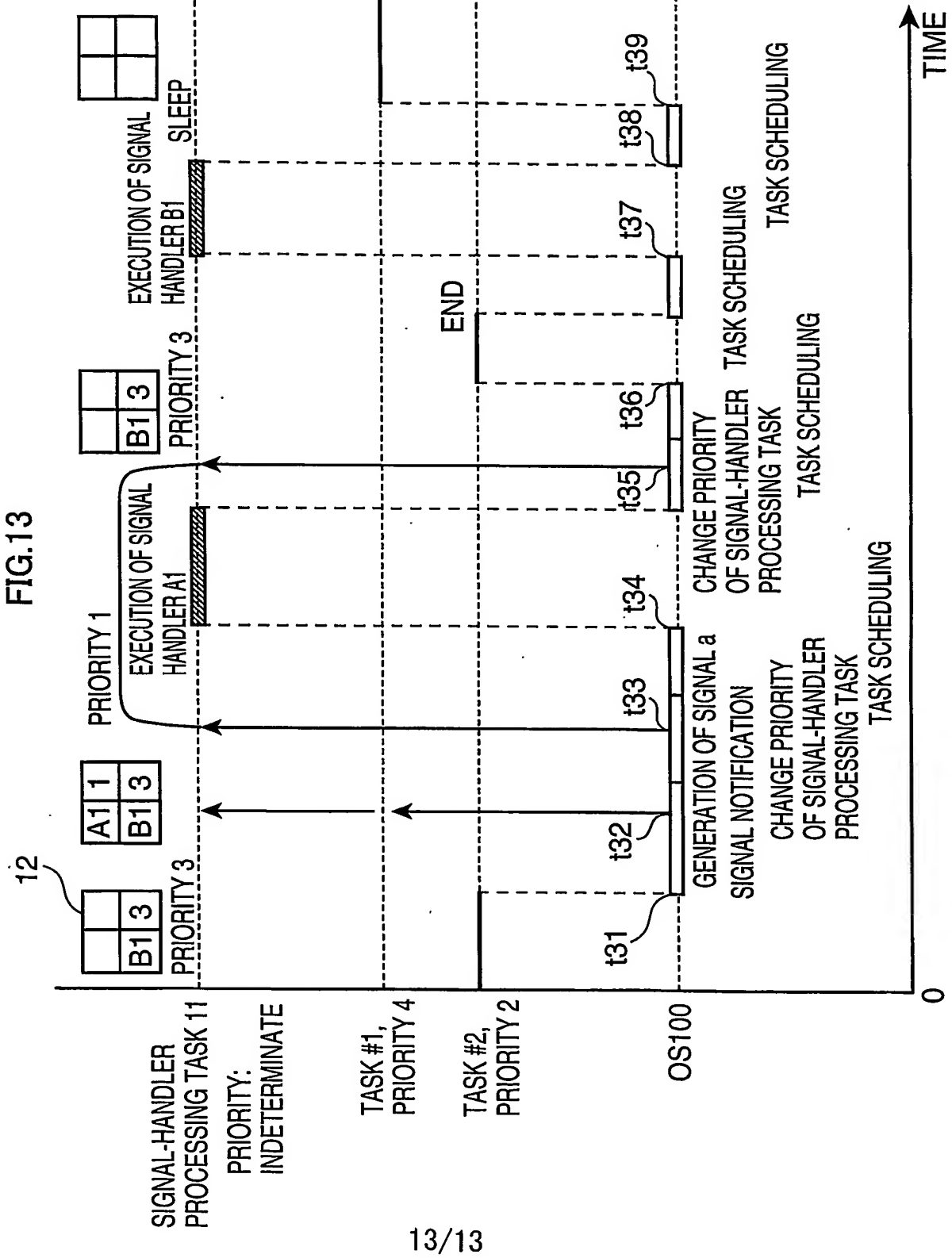

CALL TASK SELECTING SECTION
S41
SELECT ONE HAVING HIGHEST PRIORITY FROM TASKS IN TASK PRIORITY TABLE
S42
CALL TASK EXECUTING SECTION
S71
S72
SELECTED TASK IS SIGNAL -HANDLER PROCESSING TASK?
YES
NO
S73
START EXECUTION OF SIGNAL -HANDLER PROCESSING TASK
S74
EXECUTE HANDLER HAVING HIGHEST PRIORITY IN QUEUE
S75
DELETE HANDLER HAVING BEEN EXECUTED FROM QUEUE
S76
ANY HANDLER IN QUEUE?
NO
YES
SIGNAL-HANDLER PROCESSING TASK SLEEPS
S77
S78
CHANGE PRIORITY OF SIGNAL-HANDLER PROCESSING TASK IN TASK PRIORITY TABLE TO HIGHEST PRIORITY IN QUEUE
S80
EXECUTE TASK OTHER THAN SIGNAL-HANDLER PROCESSING TASK
S20
DELETE RECORDED CONTENT OF TASK HAVING BEEN EXECUTED FROM TASK PRIORITY TABLE
RETURN

FIG.13


12
A1 1
B1 3
B1 3
PRIORITY 3
PRIORITY 1
EXECUTION OF SIGNAL HANDLER A1
B1 3
PRIORITY 3
EXECUTION OF SIGNAL HANDLER B1
SLEEP
END
t31
t32
t33
t34
t35
t36
t37
t38
t39
GENERATION OF SIGNAL a
SIGNAL NOTIFICATION
CHANGE PRIORITY OF SIGNAL-HANDLER PROCESSING TASK
TASK SCHEDULING
CHANGE PRIORITY OF SIGNAL-HANDLER PROCESSING TASK
TASK SCHEDULING
TASK SCHEDULING
SIGNAL-HANDLER PROCESSING TASK 11
PRIORITY: INDETERMINATE
TASK #1, PRIORITY 4
TASK #2, PRIORITY 2
OS100
0
TIME